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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

17 November 1977

MEMORANDUM FOR: The Director of Central Intelligence
FROM : William W. Wells
Deputy Director for Operations
SUBJECT : WARSAW PACT JOURNAL: Characteristics of the
Organization of Communications in Combined
Exercises of Allied Troops

1. The enclosed Intelligence Information Special Report is part of a series now in preparation based on articles from a SECRET Soviet publication called Information Collection of the Headquarters and the Technical Committee of the Combined Armed Forces. This article deals with the many communications problems which arise during combined exercises, not only as far as equipment is concerned, but also the language differences due to the participation of allied troops of various nationalities. The author proposes possible solutions to the problems, which include using a common communications system, leasing channels of state communications networks, and including in the crews of the terminal stations personnel who know the appropriate language. This journal is published by Warsaw Pact Headquarters in Moscow, and it consists of articles by Warsaw Pact officers. This article appeared in Issue No. 2, which was published in 1971.

2. Because the source of this report is extremely sensitive, this document should be handled on a strict need-to-know basis within recipient agencies. For ease of reference, reports from this publication have been assigned the

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William W. Wells

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Intelligence Information Special Report

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SUBJECT

WARSAW PACT JOURNAL: Characteristics of the Organization of
Communications in Combined Exercises of Allied Troops

SOURCE Documentary

Summary:

The following report is a translation from Russian of an article from a SECRET Soviet publication called Information Collection of the Headquarters and the Technical Committee of the Combined Armed Forces. This journal is published by Warsaw Pact Headquarters in Moscow, and it consists of articles by Warsaw Pact officers. This article was written by General-Major B. A. Komarov. This article deals with the many communications problems which arise during combined exercises, not only as far as equipment is concerned, but also the language differences due to the participation of allied troops of various nationalities. The author proposes possible solutions to the problems, which include using a common communications system, leasing channels of state communications networks, and including in the crews of the terminal stations personnel who know the appropriate language. This article appeared in Issue No. 2, which was published in 1971.

End of Summary

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Characteristics of the Organization of Communications
in Combined Exercises of Allied Troops

by

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Staff of the Combined Armed Forces

An analysis of the nature of modern operations and of the experience of numerous combined exercises of the allied troops attests to the fact that the problems of supporting the control of troops, at the present time, have acquired special significance. The requirements for communications have also increased significantly. As never before, communications must be reliable, mobile, and continuous, and must be highly reliable, effective, and secure in transmitting orders, instructions, and reports, have a great transmission capacity, and be in constant readiness to support the conversations of the command (staff officers) and to transmit (receive) information.

During the last few years, staffs and communications units of the allied troops have gained a great deal of experience in organizing and supporting communications during combined operations at exercises. On the basis of this experience, we think it is advisable to consider some problems which are of great importance in the conduct of combined measures.

When organizing communications at exercises, the problem usually arises as to which system of communications should be employed in order to sufficiently ensure control both in support of the directing body staff and in support of the staffs of the allied troops participating in the exercise; in other words, at which level can communications, organized by the directing body staff, be combined with communications which are necessary for the control of troops participating in the exercise.

In our opinion, during combined operations of the allied troops at exercises, the communications system must be sufficiently ramified, multichanneled, and common for the directing body staff and all troops participating in the exercise.

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A common system of communications is developed in accordance with the established organization of control at the exercise and with the layout of communications which are determined by the staff organizing the exercise. This system is a network of control post communications centers and of auxiliary (supporting) communications centers of the directing body staff and the troops participating in the exercise, which unite together radio, radio-relay, tropospheric, and cable lines of communications.

It is advisable for communications nets and lines of the directing body staff and various levels of control of the participating troops to be connected with each other, forming, in that way, a common system which would allow the organization, when necessary, of communications of the directing body staff and staffs participating in the exercise by means of common multichannel lines, and the establishment of communications via bypass links, through the chain of command, and also via new links if the necessity arises during the exercise.

The advisability of developing a common system of communications stems primarily from the requirement for the more efficient use of available forces and means of communications of the allied troops, as well as from the necessity of flexible maneuvering of communications channels to ensure reliable and stable control of the troops.

The necessity for a common system of communications also arises from the requirement for centralized control during the combined actions of the allied troops. In order to unite the efforts of the allied army troops in achieving the common goal, to ensure a high degree of coordination of their actions and to obtain the most efficient utilization of all available forces, the control of allied troops, obviously, must be strictly centralized, and must be based on a common system of communications.

The experience of exercises shows the impracticality of setting up limited channel communications lines in support of any formation of one nationality. It is better to set up multichannel lines, which satisfy the requirements of control of all the troops operating on a given axis or in given area, irrespective of their nationality. This makes it possible to develop a communications system at a faster rate and with a

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lesser expenditure of forces and means. The forces and means saved on account of the above may be efficiently used for increasing the survivability of the communications system.

The model in this respect was the organization of communications at the exercise BRATSTVO PO ORUZHIIYU (BROTHERHOOD-IN-ARMS). At this exercise, a common communications system was developed meeting the control requirements both of the directing body staff and also of the participating allied troops. The common system was based on leased channels of the state wire communications net, as well as a highly ramified net of multichannel radio-relay lines set up by the forces and means of communications units of the National People's Army, the Group of Soviet Forces, Germany, and partially of other allied forces. A total of five main radio-relay lines were set up in the area of the exercises: east-west lines and three lateral north-south lines.

In addition, several field cable lines, set up in the area of the exercise, were included in the common communications system. All the leased communications channels and channels which made up the radio-relay and field cable lines were connected together through communications centers of control posts and through auxiliary communications centers deployed in the area of the exercise.

The network of field cable lines was also developed extensively on the training grounds where the actual combat actions of the troops were played out. The communications nets on the grounds were also connected with the overall net which was set up in the area of the exercise, enabling communications to be brought together in any combination both in support of the directing body staff and in support of the participating troops.

The total length of radio-relay communications lines used in the exercise was about 2,200 kilometers. The channels of these lines were allocated in a centralized manner by a common plan in support of all staffs and control posts regardless of their national affiliation. The channel allocation plan was coordinated with all interested staffs.

The channels of radio-relay lines were connected to terminal communications centers by limited channel R-405 (R-401M) sets, a

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large capacity low-frequency cable, or by a long-range communications cable with a multiplexing device.

At the exercises, a total of around 80 R-404 sets and 130 R-405 (R-401M) sets were operating.

Owing to the establishment of the common system of wire and radio-relay communications, numerous tasks of providing control were successfully accomplished during the exercise and especially those additional tasks which were assigned as unforeseen circumstances arose.

From the first conclusion on the advisability of establishing a common system of communications, the second conclusion follows which also was repeatedly confirmed by the experience of the exercises conducted; namely, the necessity of centralized control when planning, organizing, and supporting communications in the area where combined exercises are conducted.

Centralized control, in our opinion, makes it possible to more efficiently support the coordinated actions of the communications chiefs of formations, large units, and units of the allied troops and communications units subordinate to them when accomplishing tasks for supporting command and cooperation communications at the exercise.

In addition, with centralized control, the problems are better resolved of connecting into the overall communications system the communications lines and centers deployed by the forces and means of formations (large units) of allied troops, as is the problem of maintaining their contact with each other.

And finally, centralized control is necessary for carrying out the precise coordination of the allocation and use of frequencies with the aim of ensuring electromagnetic compatibility of all radioelectronic means concentrated in a limited area of combined operations; that is, ensuring the best work of the means without mutual interference. The fact of the matter is, radioelectronic means have been used to a very great extent. They have come to make up the technical foundation of all modern systems of control of troops and weapons. This has resulted in a significant increase in the density of

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radioelectronic means of various functions in troop groupings, and consequently, in the increase of the probability of the occurrence of mutual interference, especially during combined operations of the allied troops.

It is possible to reduce the probability of the occurrence of mutual interference only when there is centralized allocation of working frequencies and the coordinated use of radioelectronic means. In connection with this, all allied troops arriving in the area of the exercises, using radio, radio-relay, and tropospheric sets must use only those radio frequencies which have been assigned to them by the directing body staff of the exercise.

The use in the exercise area of frequencies selected at will or frequencies which have been used earlier in one's own territory, obviously must be entirely excluded.

In connection with this, the necessity arises for staffs of allied troops, during the preparation for combined exercises which are to be conducted on the territory of another state, to determine their frequency requirements in advance and to direct the corresponding request to the staff which is organizing the combined exercise.

Centralized control of actual communications has been carried out in all large combined exercises of the allied troops. Such a practice has fully justified itself. Thus, at the exercise BROTHERHOOD-IN-ARMS, the communications personnel of all seven armies of the member states of the Warsaw Pact participated in organizing and supporting communications. The overall control of their work was carried out by the Chief of Communications of the National People's Army of the German Democratic Republic.

For ensuring better coordination of actions of the communications personnel of the allied armies a composite operations group was established in the directing body staff for the control of actual communications, which was made up of senior communications representatives from each of the allied armies. The work of this group was directed by the Deputy Chief of Communications of the National People's Army of the GDR.

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Similarly, a combined working group to direct communications and radiotechnical support in the interest of all aviation participating in the exercise was established by the Chief of Communications and Radiotechnical Support of the Air Forces and Air Defense of the National People's Army of the GDR. The work of this group was directed by the Chief of Communications of the Air Defense and Air Forces of the National People's Army of the GDR.

The existence of such groups made it possible to quickly and efficiently resolve and coordinate all practical matters concerning the organization and support of communications which arose during the preparation for the exercise and during the conducting of it.

In spite of the fact that a great number of radio and radio-relay means of communications were concentrated in the area of the exercise, as well as means of radiotechnical support of aviation flights, which belonged to the various allied armies, there was no perceptible mutual interference owing to the precise and strictly centralized allocation of frequencies, as well as the well thought-out use of radioelectronic means during the exercise. We were able to quickly detect and eliminate individual cases of mutual interference which took place during the preparatory period.

With the centralized control of the communications system, of course, autonomy in resolving the problems of organizing and supporting communications within the formations (large units) of the individual allied armies is not ruled out. Each communications chief of a formation (large unit) organizes communications within his formation (large unit) independently, guided by the orders of his commander (chief of staff) and the overall directives of the chief of the communications troops of the higher staff or staff which organizes the conduct of the combined exercise.

A special place is usually given to the organization of command and cooperation communications between staffs of the allied troops of various nationalities when planning communications for combined exercises.

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As exercise experience has shown, command communications between staffs of the various allied troops for a number of reasons are organized so as to ensure control both along the lines of operational subordination of the command of the formation of another nationality, and along our own national lines. This is usually achieved by opening additional communications which are not required with a single-nation complement of formations.

The staffs of the allied armies during the conduct of the exercises employed various methods in organizing command and cooperation communications between staffs of different nationalities. All of them are of great interest and, therefore, we will look at each of them separately.

First of all we will look at how radio communications were organized.

At all combined exercises, command and cooperation radio communications between staffs of the allied troops were organized on the general radio nets and radio links on the basis of radio operating data which were worked out and disseminated by the higher staff organizing the exercise, and were supported at each communications center by national crews and radio means.

This method has a number of merits. It is the most efficient and economical. Radio communications by it may be organized quickly, without carrying out any additional measures. The necessary radio operating data for this may be worked out and disseminated in advance.

With this method, an additional expenditure of communications forces and means is not required either from the higher staff or from the subordinate or cooperating staff.

This method, however, presupposes the establishment of common rules for conducting radio communications and common documentation for radio communications, (a common system of selecting call signs for radio sets, of authentication procedures, a common procedure table for the duty radio operator, etc.) as well as the presence in the allied troops of well-trained specialists who are capable of supporting the combined work with the communications personnel of another

nationality. Furthermore, with this method the full standardization of the electronic parameters of the communications means used is required, especially when secure radioprinter communications are used. When supporting radioprinter communications, some difficulties also arise in view of the language differences.

For increasing the reliability of command and cooperation radio communications between the staffs of different nationalities, in some cases in addition to the method stated above, two-way or one-way radio traffic was employed by special communications groups which were sent to command posts of the appropriate staffs within the operations groups. Radio communications with special communications groups were carried out on the basis of radio operating data prepared by the staff which sent the special communications group. The frequencies, in the process, were coordinated with the directing body staff of the exercise.

This makes it possible to raise the stability of radio communications since there are no difficulties here connected with peculiarities which are characteristic during support of radio communications between radio stations of different national affiliations. However, in the process, additional radio communications forces and means are required. Exercise experience has shown that it would be expedient for these forces and means to provide for scheduling these communications units by T/O, since otherwise the dispatching of special communications groups will lessen the capabilities of these units to provide control over subordinate troops of their own nationality.

In addition, a great deal of time is required for sending the special communications groups to control posts of the allied troops. In some cases, there may not be sufficient time for this. For dispatching them by plane, suitable air-transportable communications means are needed.

With the absence of air-transportable means of communications, it may be advisable to include communications specialists without communications means within operations groups dispatched by aircraft. In these cases, radio communications are also organized as in the first method, but specialists arriving with the operations groups of the appropriate staffs of the

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allied armies take part in supporting them.

An analysis of exercise materials shows that a mutual exchange of special communications groups is not always practical since in doing so the expenditure of forces and means which are being used for the same purpose, is increased. This problem was discussed in detail at the first military science conference of the Staff of the Combined Armed Forces in July 1970. The majority of those who spoke at this conference expressed an opinion as to the advisability of adhering to a definite procedure in dispatching operations groups, and consequently, special communications groups. In particular, it was suggested that operations groups be dispatched to subordinate and cooperating staffs of the allied armies along these principles:

- from the senior staff to the subordinate -- "from the top down";
- from the right adjacent units to the left -- "from right to left";
- from formations (large units) of the second echelon and those in the reserve -- to formations (large units) of the first echelon;
- from formations (large units), units, ships of the navy, air forces, and the branch arms of the ground forces -- to the combined-arms formations (large units).

The situation is somewhat different with the organization of wire and radio-relay communications between various staffs of the allied armies since here, primarily, the question arises as to who organizes the necessary communications channels and how it is done, and only then which terminal communications means will be used (teleprinters, secure communications equipment, etc.)

As has already been mentioned above, in the area of combined exercises a common system of communications is established. In the process, leased channels of the state communications networks are generally widely used. In addition, field cable and radio-relay lines, and communications channels are set up, which are used in conjunction with state networks.

The experience of the exercises shows the advisability of setting up field wire and radio-relay lines during combined exercises of the allied troops as follows:

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- from the senior staff to the subordinate one by using the forces and means of the senior staff;
- between cooperating staffs along the front by means of an arrangement with the forces and means of the adjacent unit to the right or with the combined efforts of the cooperating staffs. Furthermore, communications channels of the lines set up according to the plan of the directing body staff may be used.

During the joint setting up of communications lines, the communications chiefs of the cooperating staffs by mutual agreement determine the areas on the terrain where the linking of national line sectors must be carried out as well as the procedure for supporting the linking.

In that case, when communications between staffs of the allied troops are organized through auxiliary communications centers which have been deployed in the exercise area, it may be desirable to set up connecting lines from auxiliary communications centers to staffs of the allied troops using the forces and means of the respective allied troops.

From what has been said, it is obvious that wire and radio-relay communications between staffs of the allied troops in a number of cases may be organized via lines set up by combined efforts.

Setting up telephone channels on such cable lines may be carried out with the use at each end of the line of the terminal channeling equipment of the respective communications centers of the allied armies or with the aid of channeling equipment of line units. The first method is possible only in the case where the communications centers of the allied troops will employ uniform or standardized high-frequency telephone equipment. In the second method, we advise the multiplexing of lines by national sectors; that is; the channeling equipment of the unit which set up the line is used in each sector.

Such a principle increases the responsibility of the commander of the unit setting up the line for the well-executed and timely establishment of communications in his sector and facilitates the overcoming of difficulties which arise in connection with language differences. However, in the process the necessity may arise for including within the auxiliary

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communications center or command post communications center the individual equipment vehicles of allied armies, the communications subunit of which sets up the cable line to this center. This equipment may arrive at the communications center of the allied army separately from the special communications groups which are dispatched within the complement of the operations groups.

Obviously, this will not cause any special difficulties in the work of the communications centers. The arriving equipment vehicles of another allied army, just as radio sets of special communications groups, must be located in the center in accordance with the instructions of the local chief of the communications center and the crews of these equipment vehicles must be subordinate to him in all matters of internal routine.

Setting up telephone channels in jointly established radio-relay lines is carried out with the use of equipment which is included in the inventory of the radio-relay stations. With the use of uniform radio-relay stations, national sectors of the line are linked together by a high frequency, and for setting up telephone channels, equipment from terminal stations is used. During the use of multi-type stations, channeling is carried out by sectors and national sectors are joined together by a low frequency.

Language difficulties which arose during joint setting up of radio-relay lines in various exercises were overcome by selecting and including in the crews of the terminal stations and stations at the junctions of the line, personnel who knew the appropriate language or by detailing to the station of the allied army during the establishment of communications a representative from its own communications unit (as a rule an officer) who knew the appropriate language. In some cases, it was sufficient that this representative fulfilled only the role of an interpreter.

Telegraph channels through cable, multichannel, and radio-relay lines, in all exercises where the necessity arose, were formed by the secondary multiplexing of the telephone channels with the use of voice-frequency telegraphy equipment from the appropriate communications centers of the allied armies.

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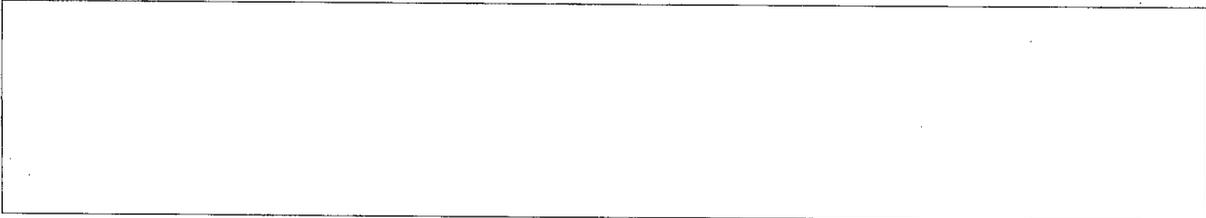


The use of such a method of forming telegraph channels also is possible under the condition whereby uniform or standardized voice-frequency telegraphy equipment will be used at communications centers of the allied armies allowing combined work to be carried out between them.

Terminal secure communications equipment and telegraph equipment of the national communications centers are usually employed at both ends of the communications link on the telephone and telegraph channels which have been formed. It is also suggested here that at these communications centers, standardized or uniform telegraph equipment and uniform secure communications equipment be used.

In some cases at the exercises the special communications groups which were sent with the operations groups had equipment vehicles with the terminal equipment necessary for supporting secure telephone and telegraph communications through wire and radio-relay channels. In these cases, the terminal equipment of the local communications center is not used for the stated purpose.

These are some of the peculiarities of organizing and supporting communications when conducting combined exercises of the allied troops.



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